THE

DESCRIPTION

AND USE

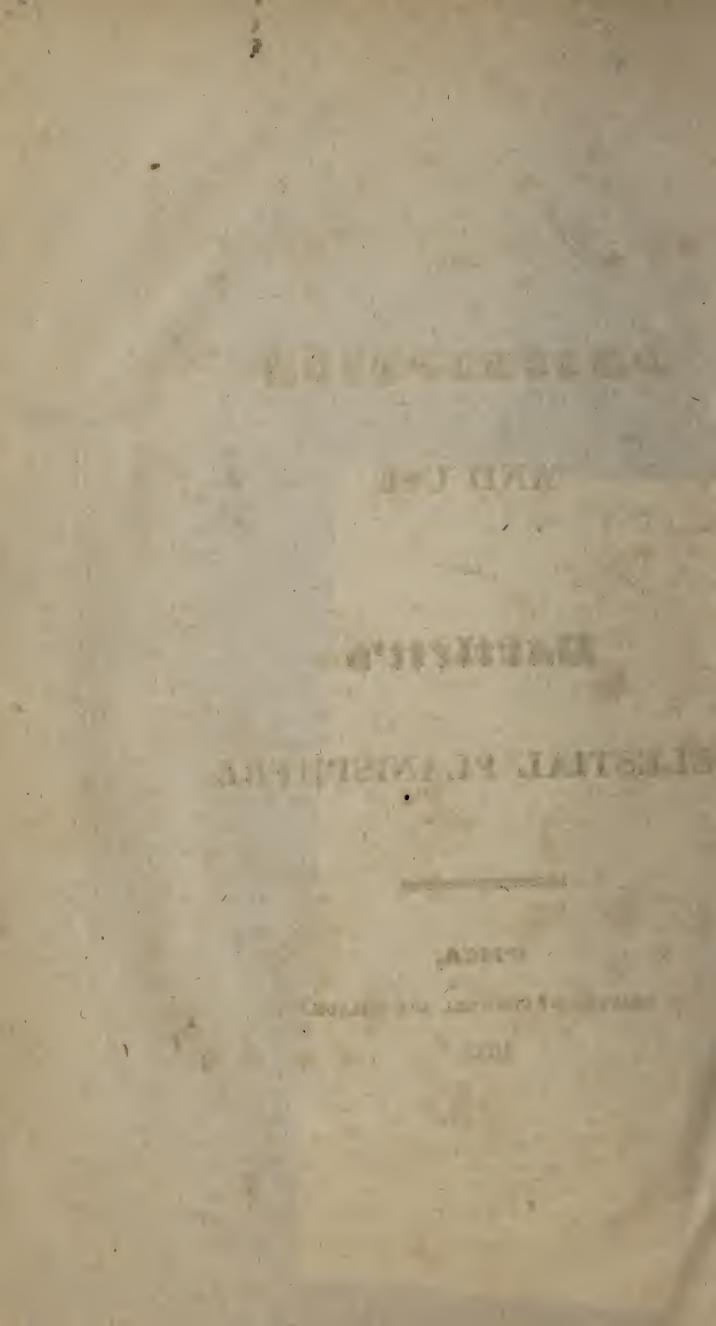OF

Bartlett's

CELESTIAL PLANISPHERE.

UTICA,

PRINTED BY COLWELL AND WILSON.

1825.

Description, Use, &c.

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1. This Map exhibits the Sensible Heavens, in two hemispheres, a northern and a southern, divided at the Equinoctial Circle, upon the plain of which, the Diagram is projected.

2. The eye, in looking upon this Map, is supposed to be placed in the centre of the celestial sphere, or at the point at which the axis of the apparent daily motion of the heavens, passes the plain of the celestial equator.

3. From this point, the observer is able to look north and south, and distinguish the poles in the rational Horizon, refered to the Equinoctial Colure.

4. Above his head he will find the Zenith, crossed from east to west by the Equinoctial Circle, and from north to south, by the Solstitial Colure, answering to the universal Meridian.

5. Beneath his feet, he will observe the nadir, crossed at right angles by the same circles. With his face to the east, or point Aries, he will see the Ecliptic at an angle of about 23 1-2 degrees on his left, above him, and at the same distance, south, below him.

6. He will regard all the great circles as a species of frame in which the Map, representing the sphere, is supposed to revolve from east to west, agreeably to the apparent motion of the celestial sphere.

7. From this point, he will also observe a series of secondaries, drawn at equal distances, crossing the celestial Equator at right angles, and terminating in the poles; these are called meridional circles.

8. He will also see another series of secondaries, drawn on both sides of, and parallel to, the Equinoctial circle, crossing the meridional lines at right angles, and at equal distances. All the secondaries, with the hour circles at the poles, and the equal grad-

uation of all the great circles, are designed to aid in the solution of the subjoined problems.

9. From the centre of the celestial sphere, he will also see the concave hemisphere lying above the horizon, and extending 90 degrees in all directions from the point over his head; and the several orders of the celestial bodies, which, for the time being, are visible, and the relative situation of the constellations in which these are placed.

10. In this examination, he will derive some assistance toward rendering the objects which he sees clear and distinct, by observing that the portion of the sensible heavens, lying above the horizon, is in fact one half of the whole celestial sphere, embracing about one half of all the constellations and visible stars.

11. That the point Aries is east where the sun is said to rise; the point Pisces, west; where the sun sets, that Cancer lies north, and Capricorn south; hence, the hemisphere over his head is divided into four equal parts, separated by the celestial equator and solstitial colure.

12. That from the zenith to the horizon, all straight lines are 90 degress; and from one side of the horizon to the opposite, through the zenith, the distance is twice 90, or 180 degrees, and that the horizon includes 360 degrees. Also, that at the eastern half of the horizon, new portions of the sensible heavens are constantly rising into view, at the rate of 15 degress or 1-24th of the whole circle per hour; and at the western half the celestial objects are dropping behind the horizon out of sight at the same rate.

13. He will observe likewise, that the Ecliptic which passes in a serpentine line through the map, from left to right, commencing at the 1st degree of Aries, verging north to the tropic of Cancer, crossing the celestial equator at 1st degree of Libra, verging south to the tropic of Capricorn, and terminating at the 30th degree of Pisces, is furnished with the months of the year, and divisions for the days, on one side, and the signs with their divisions, answering to the months on the opposite side, and is also divided

into 360 equal parts, answering to the apparent daily progress of the sun, from east to west, in his annual revolution.

14. He will further observe, that, upon each Planisphere an analemma is drawn extending, on the northern half, from the Equinoctial circle to the tropic of Cancer; and on the southern from the same circle to the tropic of Capricorn. This is furnished with the months of the year and divisions for the days, drawn from the divisions of the Ecliptic; and as the one shows the sun's right ascension, so the other shows his declination for every day of the year.

15. He is to bear in mind that the apparent motions of the heavens, arise from the real motions of the earth; that the daily apparent motion of the heavens round its axis of revolution is 15 degrees an hour, and the motion in its annual orbit, is as 360 is to 365, or almost one degree a day. These apparent revolutions, with the effects resulting from them respectively, must be kept distinct.

16. He is to remember, finally, that if he moves either north or south, the Equinoctial coluer will not represent the rational horizon, but he must suppose an horizon to be drawn as many degrees from the colure as he shall have moved, which will separate between the visible and invisible half of the heavens.

SKETCHES OF THE HISTORY OF THE CONSTELLATIONS.

The division of the sensible heavens into distinct clusters of stars, called constellations, is said to have originated either with the Egyptians or Chaldeans, at a very early period of antiquity; and the imaginary, grotesque figures, introduced to distinguish those divisions, are probably such as served, with mankind in those ages, to commemorate some peculiarity in the seasons of the year, or some special event in national history. Those nations which flourished in succession after the Egyptians, adopting the same course, displaced the figures introduced by their pre-

decessors,and substituted others, calculated to record their own historical events; and modern astronomers, following up this order of things, have also formed, from the scattering, *or unformed* stars, omitted by the ancients, a number of similar figures, which rank as constellations. The whole catalogue amounts at this period to nearly 100. (94) Of these the ancients formed about 45, and the moderns the residue. Among those formed by the ancients, are the 12 attached to the Zodiac, answering to the 12 months of the year. The account of the origin of these constellations is not only greatly diversified, but very, contradictory; the probability however is, that they were designed to distinguish some circumstance peculiar to the month which they respectively represent.

The order in which they are placed in the astronomical year, is as follows :

  1. Aries, *the Ram* 66 Sars. ⎫
  2. Taurus, *the Bull*, 141, ⎬ *Spring Signs.*
  3. Gemini, *the Twins*, 85. ⎭

These signs extend from the left hand extremity of the map, along the ecliptic, and terminate where the solstitial colure crosses that circle. The sun *appears* to pass through these signs, because the earth in her revolution round the sun, *actually* passes through those that lie in the opposite section of the Zodiac, to wit: Libra, Scorpio, and Sagittarius. The period of the sun's apparent passage through these signs, constitutes the first astronomical quarter.

Aries was introduced by the ancients, and was doubtless designed, as a hieroglyphic character, to illustrate a fact in natural history refering to the season incident to the apparent place of the sun at the time of its introduction. The Greeks, however, say this figure is symbolical of the Ram, which bore the golden fleece. And in the Hebrew Zodiac, the Ram refers to the tribe of Gad. About 4000 years since, the Vernal Equinoctial point, was in the first degree of this sign, but in consequence of the precession of the equinoxes, that point is now in Pisces.

Taurus, the second sign in the Zodiac, is supposed to be of Egyptian origin; that nation worshiped Apis, under the form of this animal; yet the Greeks represent him as the animal which bore the fair Europa in safety across the sea to Crete. While, with the Hebrews, Taurus is said to refer to Joseph. In this constellation are located Aldebarun, a star of the 1st mag. and of a firey complexion; it may be seen on the meridian of Washington in the month of December, at about 12 o'c. night. Also, the Pleiades and Hyades, the fair fabled daughters of Atlas, King of Mauritania in Africa.

Gemini was introduced by the Greeks, to perpetuate the memory of the Royal Brothers, Castor and Pollux, the sons of Jupiter. This is probably some modification of the Egyptian representation of the same sign; by the Hebrews, the Twins are refered to the tribe of Benjamin. Two beautiful stars distinguish this constellation, Castor the most northern, is of the 1st mag. Pollux is of the 2d mag.

Following the Ecliptic to the right of the Solstitial Colure, the next in order is

4. Cancer, *the Crab*, 83, ⎫
5. Leo, *the Lion*, 95, ⎬ *Summer Signs.*
6. Virgo, *the Virgin*, 110. ⎭

These embrace the region of the Ecliptic which answers to the 2d quarter of the astronomical year, extending from the tropic of Cancer, to the 1st of Libra. The sun *appears* to pass through these signs while the earth is in *fact* passing through those of Capricorn, Equarius, and Pisces.

Cancer is supposed to be of Chaldean origin, and is said to represent, by its backward movement, that season of the year, when the sun, having reached the Tropic, returns back toward the equator. The Greeks, however, say it commemorates the animal sent by Juno to annoy Hercules while fighting the Hydra.

Leo. This figure was introduced by the Egyptians in commemoration of that season in which the Lion,

driven by thirst from the parched deserts of Africa resorted for relief to the waters of the Nile. The Greeks refer it to the Lion killed by Hercules in the Nemean forest. The Hebrews refer it to the tribe of Judah. This constellation is decorated with two brilliant stars; Regulus or the Lion's heart, lies but a few minutes north of the Ecliptic; Denebola is in the bushy part of Leo's tail, and at seasons appears as large as Regulus.

VIRGO is said to be the goddess of justice, formerly drawn with a sword in one hand and the balance in the other. Julius Cesar stripped her of the scales and made them a separate constellation. By others she is said to be Ceres the goddess of harvest, and has been thus represented since the days in which Ruth gleaned in the fields of Boaz; though the Hebrew Zodiac represents her as refering to Naphthali. Spica, a star of the first mag. decorates the sheaf in her left hand.

The foregoing six signs are called the northern signs, because they lie north of the celestial equator. Leaving Virgo, however, the sun appears to arrive at the Equinoctial circle, crossing which he enters

   7. Libra,   *the Scales*,   51, ⎫
   8. Scorpio,   *the Scorpion*,44, ⎬ *Autumnal Signs.*
   9. Sagittarius, *the Archer.* 69. ⎭

These constellations occupy the space in the Ecliptic lying between the junction of the Equinoctial circle, the Equinoctial Colure, and the Ecliptic, and the Solstitial Colure, which crosses the Ecliptic at the first degree of Capricorn on the southern hemisphere. The sun in passing these, occupies the period of the 3d astronomical quarter, while the Earth in her orbit passes through the three opposite signs, to wit: Aries, Taurus, and Gemini.

LIBRA, once graced the hands of the beautiful Virgo; but a little before the Christian Era, the Roman Emperor, Julius Cesar, despoiled her of her appropriate emblem, and placed the scales in the path of the sun to balance the year. The Greeks say that the

Balances were made a constellation in the heavens to perpetuate the memory of Mochus, the inventor of weights and measures. And in the Hebrew Zodiac, the Balances refer to the tribe of Asher.

SCORPIO, the eighth constellation of the ancient Zodiac, was probably formed by the Egyptians, designed to represent the sun's place during that period of the year, in which diseases, generated by the previous use of the immature fruits of the earth, generally prevailed. The Scorpion is said to wound with a sting in his tail after he has passed by. The Greeks maintain that Scorpio was the animal that killed Orion, and in consequence was immediately placed in the heavens. By the Hebrews, the sign is referred to Dan, who was to be "a serpent by the way; an adder in the path." Scorpio contains Antares, a fiery star, of the 1st mag.

SAGITTARIUS. This figure may probably be referred to the idea first suggested by seeing a man on horseback. The man and the horse were supposed to constitute but one animal; designed as a symbol of that season of the year usually appropriated to hunting. The Greeks claim it, however, as designed to commemorate Chiron, who first taught horsemanship, or Crotus, a famous hunter. The Jewish Calendar assigns it to the half tribe of Manasseh.

The signs which mark the 4th and last astronomical quarter, are

10. Capricornus, *the Goat*,   57. ⎫
11. Aquarius,   *the Water-bearer*, 108. ⎬ *Winter Signs.*
12. Pisces,   *the Fish.*   113. ⎭

These extend along the Ecliptic, from the Solstitial Colure on the southern hemisphere, to the junction of the Equinoctial, Equinoctial Colure, and the Ecliptic, at the right hand of the Map, and finishes the astronomical year.

CAPRICORNUS was formed by the Egyptians. Africa is a country which formerly abounded with Goats and at one period the animal was held in high veneration. As the Goat delights to climb rocks and hills,

and to mount precipices, so he was a fit emblem of that season of the year in which the sun, having reached the southern Tropic, begins his journey back to the Celestial Equator, and to the inhabitants of the Northern Hemisphere, appears to mount or climb upwards.

The Greeks have never laid claim to the Goat, but the Hebrews refer him to Zebulon.

AQUARIUS, is probably another of the Egyptian hieroglyphics, designed to designate that season of the year, which follows the breaking up of winter in that ancient country. The Greeks however refer Aquarius to the celebrated Deucalion, from whom the Thessalian deluge takes its name; while the Hebrews refer him to the tribe of Reuben.

PISCES, the last of the Zodical figures, was also introduced by the Egyptians. This sign represents that season of the year in which the inhabitants, finding no means of sustenance from the forest, garden, or field, derived a support from the abundance of fish, supplied by the rivers and the ocean. The Greeks say it refers to the fable of Venus and her son, who threw themselves into the Nile, to escape from Typhon.

The six last mentioned constellations, are sometimes distinguished by the southern signs, because they lie south of the Celestial Equator. Aside from the above described signs of the Zodiac, there are lying North of the Equinoctial Circle thirty-five Constellations, and south of that circle forty-seven, Those to the North are almost all of ancient origin, many of those in the South are of more modern date. Those lying North, are here introduced, with the number of stars contained in each, agreeably to Flamstead's table.

		Stars.
1	Ursa Minor, or *The Little Bear.*	24
2	Ursa Major, or *The Great Bear,* or *the Dipper,*	87
3	Draco, or *the Dragon,*	80
4	Cepheus,	35
5	Bootes,	54
6	Corona Borealis, or *the Northern Crown.*	21

7	Hercules,	113
8	Lyra, or *the Harp,*	21
9	Cygnus, or *the Swan,*	81
10	Cassiopeia, or *the Lady in the Chair,*	55
11	Perseus with *Medusa's Head,*	59
12	Auriga, or *the Wagoner,*	66
13	Serpentarius, or *the Serpent-holder,*	74
14	Serpens, or *the Serpent,*	64
15	Sagetta, or *the Arrow,*	18
16	Aquila, or *the Eagle,*	43
17	Antinous,	28
18	Dolphinus, or *the Dolphin,*	18
19	Equulus, or *the Little Horse,*	10
20	Pegasus, or *the Flying Horse,*	89
21	Andromeda,	66
22	Triangulum Major, or *the Larger Triangle,*	16
23	Triangulum Minor, or *the Lesser Triangle,*	5
24	Coma Berenice, *Berenice's Hair,*	43
25	Leo Minor, or *the Little Lion,*	53
26	Camelopardalis, or *the Camel Leopard,*	61
27	Lynx,	44
28	Canis Minor, or *the Lesser Dog,*	14
29	The Rein Deer,	16
30	Lacerta, or *the Lizard,*	16
31	Musca Borealis, or *the Northern Fly,*	6
32	Vulpecula et anser, *the Fox and Goose,*	35
33	Taurus Poniatowski, *Poniatowski's Bull,*	12
34	Asterion et Chara, *the Grey Hounds,*	26
35	Cor. Caroli, *Charles' Heart and Crown,*	3

The Constellations South of the Celestial Equator are:

		Stars.
1	Camelion,	10
2	King Charles' Oak,	12
3	The Flying Fish,	17
4	Argo Navis, *the Ship Argo,*	64
5	The Mariner's Compass,	13
6	Canis Major, *the Great Dog,*	45
7	The Unicorn,	26
8	The Air Pump,	22

1. URSA MINOR, THE LITTLE BEAR.

The Little Bear, is situated near the North Celestial pole. It is supposed to have been formed by *Thales*, and employed by the Phenecians for the purposes of navigation; hence, often styled by Poets, Phenece. The Greek tradition makes it a constellation in memory of Arcas, who was changed by Jupiter into a Bear, and placed in the heavens. This constellation contains the North Pole Star, ALRUCCABAH; it is situated in the extremity of the Bear's Tail, and about 1 1-2 degrees from the north pole of the heavens. This star is of the 2d mag. and may be readily found by drawing a line through the two front stars in the Dipper or Great Bear, called the pointers.

2. URSA MAJOR, OR GREAT BEAR, OR THE DIPPER.

The Great Bear is a very showy constellation, and one of the most remarkable and most extensively known of any in the Northern Hemisphere. Fable says that Ursa Major, was one of Diana's attendants, who was changed into a bear by Juno and placed in the heavens. In this constellation there are seven prominent stars, the largest of which, Dubhee, usually ranks amongst those of the first magnitude. Four out of the seven form the bowl of the Dipper, the remaining three, the handle. The two front stars in the bowl are called the pointers.

3. DRACO, THE DRAGON.

The Dragon almost surrounds the north pole. He is said to be the monster which watched the golden apples in the garden of Hesperides, near Mount Atlas in Africa, and which was slain by Hercules;—he was subsequently made a constellation by Juno, as a return for his faithful services. Draco has some distinguished stars, the largest of which is in his head, called *Ruchtab*, of the 2d mag.

4. CEPHEUS.

Cepheus was an ancient king of Ethiopia, the husband of Cassiopeia, and the father of Andromeda. In the Argonautic expedition, he accompanied Jason to Colchis in pursuit of the GoldenFleece; hence, according to Sir I. Newton, he was translated to heaven, as was all those who had any special concern in that enterprise.

BOOTES, THE BEAR DRIVER.

This constellation bears all the marks of Greek origin; he is said to have been formed in commemoration of Calisto's son, Arcas. He appears in a walking attitude, standing upon the mountain of Menalus; and with his grey hounds, is driving the Great Bear round the world once every 24 hours.

Bootes is distinguished by the splendid star *Arcturus*, mentioned in the book of Job. It comes to the meridian of Washington at 9 o'clock P. M. about the 20th of June.

6. CORONA BOREALIS, THE NORTHERN CROWN.

The Northern Crown is a beautiful constellation formed to commemorate the wreath presented by Bacchus to Ariadine the fair daughter of Minos, king of Crete, and subsequently the queen of Theseus, king of Athens, whom she liberated from prison. The king treated her with ingratitude and perfidy, which caused her death, upon which this crown was placed in the heavens. It contains one star of the 2d mag. called Alphacca.

7. HERCULES.

This constellation refers to the fabled Giant of Thebes, and the Jason of the scriptures, celebrated for his wonderful exploits. He chose in early life, the path of virtue in preference to pleasure, and is represented as a pattern of that choice, and of piety.

He is covered with a Nemean lion skin, and holds in his right hand his famous club, and in his left, the Hesperidian Branch, bearing the golden apples, among the boughs of which are darted out the head of the serpent which watched the fruit. In the head of this hero is *Ros-Algethi*, a star of the 2d magnitude.

8. LYRA, THE HARP.

The Harp represents the musical instrument which Apollo presented to Orpheus. With this Harp, Orpheus descended into the regions of the dead in quest of his fair Eurydice, who died of the bite of a serpent. The music of Orpheus charmed all the stern keepers of the dark mansion, and Proserpine restored Eurydice to the arms of her Orpheus, and to the light of day. Lyra has a beautiful star, *Vega*, of the 1st magnitude.

9. CYGNUS, THE SWAN.

This constellation lies in the Milky Way, and is known by the Cross which is formed by its principal stars. The Greeks fable this Swan, as the one, in the form of which Jupiter appeared to decieve Leda. Others say it commemorates Orpheus the musician, who, being murdered by a priestess of Bacchus, was, after his death, changed into a Swan, and placed in the heavens near his harp. *Deneb*, a star of the 2d magnitude, with many others of inferior show, decorate the Swan.

10. CASSIOPEIA, THE LADY IN THE CHAIR.

Cassiopeia was the wife of Cepheus and the mother of Andromeda. She was very beautiful, and no less proud of it. Her vanity offended the Nereides, or sea nymphs. Neptune, at their request, sent a monster to ravage the coast where she lived. The god of the ocean demanded, that Andromeda, beloved of her mother, should be given to the monster. The mother made the sacrifice, but the daughter was res-

cued from her perilous situation by Perseus, who slew the sea serpent. On the death of Cassiopeia, Minerva removed her to the skies.

PERSEUS, WITH MEDUSA'S HEAD.

Perseus was the son of Danæ, and husband of Andromeda, whom he saved from the jaws of the furious sea monster. Being armed by the proper deities, he made war against the Gorgons, three sisters who inhabited the deserts of Lybia, and killed Medusa by cutting off her head, which he bore away in triumph across the desert. From the blood of this head, dropping upon the sand, sprang myriads of serpents which infest that country to this day. He laid the head of Medusa upon his shield, to which it cohered, and on which it still remains. On the death of Perseus, Jupiter placed him in the heavens. He is adorned by two stars, *Algenib* and *Algol*, both of the 2d mag.

12. AURIGA, THE WAGONER.

The Wagoner personifies Erichthonius, king of Athens, who was the inventor of chariots, and expert in horsemanship. The Goat which he holds, is said to be the one which supported Jupiter when an infant, or rather Amalthea the owner of the goat, who, upon her death, had, as a reward of her kindness, a place assigned her in the heavens. Auriga contains sixty-six stars, among which is *Capella* of the first magnitude. It comes to the meridian of Washington a little after midnight in the month of November.

13. SERPENTARIUS, THE SERPENT HOLDER.

The Serpent Holder represents the physician. Esculapius, the son of Appollo. He holds a serpent in his hands to show his power over the sting of venomous reptiles. Job, who was undoubtedly an observer of the heavens, says: "By his spirit he hath garnished the heavens; his hand hath formed the crooked serpent." The Hebrews appear to have been acquaint-

ed with many of our constellations, and refer this to mother Eve and the serpent that deceived her, and the Northern Crown that which fell from the head of man at the transgression of Adam. This constellation has Ras-Alhague, a star of the 2d magnitude.

14. SERPENS, THE SERPENT.

The serpent is an animal whose existence is coeval with the creation; the term is used to designate the snake family in all its varieties. He is subtle above all other animals, and has done infinite mischief in the world. All nations appear to show an instinctive dread at his approach, and the brute creation seem to loath him. Mankind are at war with him, and ever have been, since the mandate went forth, "The seed of the Woman shall bruise thy head, and thou shalt bruise his heel." The serpent contains sixty-four stars, but none of high magnitude.

15. SAGITTA, THE ARROW.

The Arrow lies in the milky-way, near the head of the Swan. The stars which form this constellation, are few in number and small in magnitude. The Greeks say Sagetta owes its origin to the arrow with which Hercules killed the Vulture that gnawed the liver of Prometheus without diminishing it.

16. AQUILLA, THE EAGLE.

There are several opinions respecting the origin of this constellation. It seems the Eagle was a no less favorite bird of the ancients than he is of the moderns. He is said to have aided Jupiter in his war with the Giants, and in a quarrel with his father, Saturn. This is probably the bird sent by Jupiter to prey upon the vitals of Prometheus, and which was destroyed by Hercules. Aquilla contains one star, *Altair*, which is of the 1st mag. and ranges in a line nearly with two smaller ones by which the constellation may be readily distinguished.

C

17. ANTINOUS.

This constellation joins that of Aquilla, and is some-times connected with it. This is of Roman origin, and formed by Tycho Brach to the memory of Anti-nous, a youth of Bithynia in Asia Minor, who was greatly esteemed by the Emperor Adrian. This mon-arch built a city on the banks of the Nile, the ruins of which are still extant, and erected a splendid temple to the memory of his departed friend.

18. DELPHINUS, THE DOLPHIN.

The Dolphin has always been regarded as the friend of man. He was placed in the heavens by Neptune, because he saved the life of Arion, the famous Lyric Poet, and musician of Lesbos. Arion having visited Italy, accumulated immense wealth by his profession, and, resolving to return to Lesbos, took passage for that purpose. The sailors learning his wealth, pro-posed to kill him and claim his riches; permitting him, however, to play some of his best tunes, before they despatched him, he, on finishing, threw himself into the sea, and was borne safe on shore by a Dolphin which the music had drawn near the ship.

19. EQUULEUS, THE LITTLE HORSE.

This asterism is said to be the representative of the horse, called Celeris, which Mercury gave to Castor, who was famous for his skill in managing this animal. But a part of Aquuleus is exhibited; this however may be safely ascribed to the ancient hieroglyphic mode of writing, in which a head, a hand, or a limb, stands for the whole body.

20. PEGASUS, OR THE FLYING HORSE.

Pegasus is probably of Greek origin. He repre-sents the Horse which is said to have sprung from the blood of Medusa, when slain by Perseus. While a colt, he flew to mount Helicon; here, striking the

earth with his foot, he opened the fountain called Hippocrene. He was the favorite of the Muses, and, tamed by Minerva, was presented to Bellerophon, to aid in the conquest of the Chimera. Having accomplished this enterprise, Bellerophon, attempted to fly to the abode of Jupiter, but Pegasus dismounted his master, and flew to the heavens. All this is indeed sufficiently fabulous.

21. ANDROMEDA.

This lady was the daughter of Cepheus and Cassiopeia. Her father had promised her in marraige to Phineus, her uncle; from choice, however, she gave herself to be devoured by a sea monster to appease Neptune. She was chained to a rock, but in the moment of imminent peril, she was rescued by Perseus, who subsequently subdued Phineus, and then married the fair princess. Andromeda contains three stars of the 2d magnitude.

22. TRIANGULUM MAJOR, THE LARGER TRIANGLE.

The Triangle is of Grecian authority; Jupiter is said have assigned the island of Sicily a place in the heavens under the form of a triangle. The Egyptians, however, say it personates the Delta. The stars in the Triangle are small.

23. TRIANGULUM MINOR, THE LESSER TRIANGLE.

This constellation is of modern date; it was formed by Hevelius, probably to perpetuate this geometrical figure. The stars which compose the Lesser Triangle are small and can be seen only in a very clear night, and in the absence of the moon.

24. COMA BERENICE, BERENICE'S HAIR.

Berenice was the wife of Ptolemy Philadelphus, king of Egypt, surnamed Evergestes, or Benefactor. Her husband was a celebrated astronomer; in testimony of the high esteem in which he held this science

his amiable queen presented him with a lock of her beautiful hair, which he immediately placed in the heavens as a constellation. It is composed of the unformed stars, nearly all of the 5th and 6th magnitudes, between Bootes and the Great Bear.

LEO MINOR, THE LITTLE LION.

The Little Lion is of modern date. It occupies a place in the heavens, in which the ancients had placed a serpent. Some writers refer Leo Major to the Egyptians, and Leo Minor to the Greeks, and say the Little Lion represents the one slain by Hercules at Nemea, a town of Argolis, in the Morea.

CAMELOPARDALIS, THE CAMEL LEOPARD.

The Camel Leopard is an animal of Ethiopia; it resembles the camel in its docility, and the Leopard in its variegated skin, its fore legs are longer than its hind legs, hence the back appears to slope like the roof of a house. This constellation is of modern origin, formed by Helvitius; its most prominent star cuts the Arctic circle.

27. THE LYNX.

The Lynx is also of modern date; it was formed by Hevelius out of the unformed stars of the ancients, lying between Auriga and Ursa Major. This constellation embraces but few stars, and those small; none exceeding the 4th magnitude.

28. CANIS MINOR, THE LITTLE DOG.

In the history of the Little Dog, there appears some diversity of opinion. It is probable however that the constellation is of Egyptian authority, designed as a sentinel to give notice of the approach of Sirius the Dog star, the rising of which was the signal for the overflowing of the Nile; hence the Latins called this asterism, Anticanis, *the Dog before the Dog.* The Little Dog contains a beautiful star of the 1st magnitude,

called *Procyon*; its amplitude distance is about 5 degrees north-

29. THE REIN DEER.   (*Tarandus*.)

This is a modern asterism, formed by Le Monuier, from a few telescopic stars belonging to two of the ancient neighboring groups. From what reason this animal was chosen to grace the heavens is not known.

30. LACERTA, THE LIZARD.

Lacerta is another new constellation formed by Hevelius, from some of the unformed stars of the ancients. There is nothing in the constellation any ways interesting; the largest stars in it do not exceed the 4th magnitude.

31. MUSIA BOREALIS, THE NORTHERN FLY.

The Fly is of modern date, contains but six stars, the largest is of the 3d magnitude. No particulars of its history have yet reached us.

32. VULPECULA ET ANSER, THE FOX AND GOOSE.

This also is a modern constellation, formed by Hevelius out of the unformed stars of the ancients. The most interesting incident in the history of the Fox and Goose, is the fact that, in 1670 a *new star* of the 3d magnitude appeared in it, but soon disappeared; in March 1671 it re-appeared, of the 4th mag.; in March 1672 it dwindled to that of the 7th mag.; since which it has not been seen.

33. TAURUS PONIATOVII, PONIATOWSKI'S BULL.

This is a small constellation of modern date, formed in 1778, by the Abbe' Poczobut, in honour of Stanislaus, king of Poland. The stars which form this constellation, resemble those of the ancient Taurus in the Zodiac; hence the name.

ASTERIAN ET CHARA, THE GREY HOUNDS.

Hevelius is the author of this asterism; hence it is of modern date. The Hounds, led on by Bootes, are in the act of barking at the Great Bear. All the stars in this cluster are small, and the constellation uninteresting except as it relates to the Great Bear and his Driver.

35. COR. CAROLI, CHARLES' HEART AND CROWN.

The Heart and Crown of Charles, is a new astreism; it was formed by Sir Charles Scarborough, physician to Charles the 2d, in honour of the father of his royal patient, Charles the 1st. The principal star in Cor. Caroli is in the neck of Chara, the southern Grey Hound.

SKETCHES OF THE HISTORY OF THE SOUTHERN CONSTELLATIONS.

1. THE CAMELION.

When and by whom the Camelion was transferred to the heavens, does not appear. It is probable that it is a new constellation formed by Dr. Halley, who is said to have visited the island of St. Helena, for the purpose of examining the stars near the south pole, in 1676.

2. ROBUR CAROLI, CHARLES' OAK.

This constellation personifies the Oak of England which saved the life of Charles the 2d, after the famous battle of Worcester. Robur Exp is one of Halley's introduction; it is a constellation of considerable beauty, and contains one star, *Arobur*, of the 1st. mag.

3. PISCIS VOLANS, THE FLYING FISH.

This is also a modern constellation, presumed to be so because mentioned in none of the old Books. We

have no account of its origin, but expect it may be referred to Halley, as he has the honor of forming most of the new southern constellations.

4. ARGO NAVIS, THE SHIP ARGO.

The Ship Argo was built in Thessaly; it was the first constructed by the Greeks. In her the Argonauts, pilotted by Jason, undertook the voyage to Colchis with a view to recover the Golden Fleece. This however is the Greek account of this cluster; but it is supposed the constellation originally referred to Noah's Ark, and the Deluge. Argo contains several beautiful stars; the most brilliant is Canopus of the 1st mag.

5. THE MARINER'S COMPASS. (*Pyxis Nautica.*)

The Compass is a modern constellation, composed of very small stars, and designed to commemorate the invention of this machine so useful to the mariner, and important to commercial pursuits.

6. CANIS MAJOR, THE GREAT DOG.

This constellation is of Egyptian origin, designed probably to represent their idol Anubis. The rising of this cluster indicated the swell of the Nile; hence, its brightest star, the largest, apparently, and most brilliant of all the fixed, is called *Sirius*, or Centinel, the watch of the year.

7. THE UNICORN. (*Monoceras.*)

The Unicorn is of modern date; it was formed by Hevelius out of the unformed stars of the ancients. The stars in Monoceras are small; none above the 4th order. This constellation is crossed by the celestial equator.

8. THE AIR PUMP. (*Machina Pneumatica.*)

Little is known of the introduction of the Air Pump

to a place in the heavens. It is not mentioned in the list of old constellations, hence it is presumed to be of modern date. It embraces 22 stars, most of which are telescopic, 3 only visible to the naked eye.

9. HYDRA, THE WATER SNAKE.

The Hydra extends from east to west above 100 degrees. It is claimed by the Greeks, and is said to personify the many-headed serpent, which was killed by Hercules in Lake Lerna in the Morea. The probable story however is, that the Hydra by its many heads, is designed to represent the abundance of serpents which infested the Marshes of Lerna.

10. SEXTANS, THE SEXTANT.

The Sextant, a modern constellation, was formed from the unformed stars between Hydra and Leo, by Hevelius in the 17th century. It commemorates the sextant used by Tycho Brach on the island of Huenna. The stars of this group are all small.

11. THE CUP OR GOBLET. (*Crater.*)

The Cup ranks among the ancient constellations, and of course no positive history of its origin is given. The Chaldeans represent it as a symbol of the cultivation of the vine by Noah. The Greeks say it is the cup out of which Bacchus drank nectar; or the cup of oblivion, used by the Platonists; or that it is the cup placed near the lips of Tantelaus, out of which he would drink if he could.

12. The Table Mountain, (*Mons Mense.*)
13. The Water Serpent, (*Hydrus.*)
14. The Rhemboidal Net, (*Reticula Rhomboidalis.*)
15. The Clock, (*Horologium.*)
16. The Sword Fish, (*Dorado.*)
17. The Painter's Easel, (*Equuleus Pictorius.*)
18. The Graver's Tools, (*Praxiteles, vil Cela Sculptoria.*)
19. Noah's Dove, (*Columba Noachi.*)
20. The Hair, (*Lepus.*)

The above nine constellations are all of modern date. Little is said respecting the history of any of them, nor is it known by whom they were all introduced. The Engraver's Tools are designed to keep alive the memory of the famous sculptor, Praxitiles. The Dove commemorates that which left the ark and returned with an olive leaf in her beak. And the Hair is said to have been placed at the feet of Orion for the purpose of indicating his ability in the chase.

21. ORION.

This constellation is the most splendid of all in the heavens; those which surround it are also very conspicuous; taken together, they occupy a section of the firmament by far the most brilliant and attractive. The winter season in which the clusters of stars composing these asterisms appear visible to us, is much in their favour, and adds materially to their beauty. Orion is distinguished by the three bright stars which form his girdle. The Greeks refer these to *three kings;* the Hebrews, to *Jacob's staff or rod;* and some farmers distinguish them by the *Rake;* while others call them, in conjunction with those that represent his sword hanging to his belt, the *Ell and Yard.* Various and contradictory accounts are given of this constellation, none of which, however, appear to have much foundation either in reason or fact. Orion is from a Greek word, implying to storm. To the mariners of antiquity, his first annual appearance in the heavens was indicative of storms and disasters. This constellation is spoken of in the Bible in three different places; In Job, in Isaiah, and in Amos. This prophet says "Seek Him that maketh the seven stars and Orion, and turneth the shadow of death into morning."

22. THE SCEPTRE OF BRANDENBURG, (*Brandenburgeum Sceptrum.*)

This constellation was formed in 1688 by Geoffrio Kirch, a Prussian astronomer. Three of the principal stars which form it, range at right angles with the Equator.

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23. THE RIVER PO, (*Eridanus.*)

The river Po, was, undoubtedly, in the first instance, the river Nile, and originally introduced by the Egyptians. By some, however, it is made to refer to the deluge, and Orion, who stands at the head of it, to Noah; as Eridanus is sometimes called the river of Orion. The Po, at its southern extremity, contains Achenier, a beautiful star of the 1st magnitude.

24. THE FURNACE, (*Fornax Chemica.*)

This is a modern constellation; by whom or when it was introduced, is not known. The stars which compose it are small and unimportant.

25. THE PHENIX.

The Arabs are said to have been acquainted with this cluster of stars, under the name of Griffin. Its present name is of modern application. The Phenix has a fine star of the 2d mag. near the right eye.

26. OFFICINA SCULPTORIA, (*The Sculptor's Tools.*)

This constellation lies south of Cetus, and was placed there by La Cailla. The stars of which it is composed are all less than the 4th magnitude; hence unimportant.

27. THE WHALE, (*Cetus.*)

The Whale is the largest constellation in the heavens; it is supposed to be of high antiquity. The Greeks refer it, nevertheless, to the monster sent by Jupiter to devour Andromeda. Cetus was known as a constellation, and recorded by the ancient writers, long before the days of Andromeda.

28. Hadley's Octant, (*Octans Hadleianus.*)
29. The Peacock, (*Pavo.*)
30. The American Goose, (*Touchan.*)
31. The Indian, (*Indus.*)
32. The Crane, (*Gruss.*)

These are a few of the new constellations formed by modern astronomers, partly from the unformed stars of the ancients, and partly from stars taken from ancient clusters. They contain some prominent stars, especially one of the 2d mag. in the eye of Pavo.

33. THE SOUTHERN FISH, (*Piscis Notius.*)

The Southern Fish is claimed by the Greeks and refered to the fable of Venus and her son, who are said to have thrown themselves into the Nile to avoid the Giant Typhon. This they probably borrowed from an Egyptian Hieroglyphical figure. The Fish, with them, represented the sea. Typhon, our Aquarius, or the Water Bearer pouring the river Nile from his urn, which was swallowed by the sea;—and Venus and her son, those who embarked on the sea to avoid the inundations of the Nile. The learned Jacob Green, however, supposes Venus to personify *Semiramis* embarking on board a vessel to avoid the sudden overflow of the *Nile*. Semiramis was an inhabitant of the banks of the *Euphrates*, not the *Nile*. A beautiful star of the 1st order, *Fomalhaut*, graces this constellation.

34. The Microscope, (*Microscopium.*)
35. The Telescope, (*Telescopium Herschellii.*)
36. The Southern Crown, (*Corona Australis.*)
37. Sobieski's Shield, (*Scutum Sobieski.*)
38. The Bird of Paradise, (*Avis Indica.*)
39. The Southern Triangle, (*Triangulum Australis.*)
40. The Southern Fly, (*Musea Australis.*)
41. The Cross, (*Crux.*)
42. The Compasses, (*Circinis.*)
43. Euclid's Rule, (*Norma Euclide's.*)

This long list of southern asterisms, are all of recent date. Sobieski's Shield was formed by Hevelius in honour of a descendant of the house of Sobieski, to wit, John 3d, king of Poland.

The Telescope is designed to perpetuate the name of Dr. Herschel, and the telescope formed by his own

hands, with which he discovered in 1781, the noted planet that bears his name.

Corona Australis, is merely a wreath or garland of leaves; and as astronomers have not yet assigned it to any particular individual or event, I would suggest the propriety of referring it to the wreath with which the *Genius of America* adorns the brow of the immortal *Washington.* Let it be Washington's Wreath. Of this list, the Cross, which I should suppose to be of Roman origin, is by far the most prominent. Acrux at the foot, is a star of the first order, and is associated with others of 2d and 3d orders, which show to great advantage, and are highly useful to mariners, while traversing the Southern Ocean; by Acrux they find their situation with respect to the south pole, as, in the south there is no polar star. The nearest, of any magnitude, is about 7 degrees distant.

44. THE ALTAR, (*Ara.*)

This is an ancient group, recognised by the Hebrews, fabled however, to be the altar upon which the gods swore, before their combat with the giants. The Altar is crosed by the Milky-way, by which it is beautifully veiled.

45. THE WOLF, (*Leupus.*)

The Wolf is of Egyptian date, and usually combined with the Centaur. The Greeks fable it to be the Wolf, into which Lycaon, king of Arcadia, was changed in consequence of his wanton cruelty.

46. THE CENTAUR, (*Centaurus.*)

This is probably a Grecian cluster, and designed to commemorate the Centauri, a people of Thessaly, who were expert in the management of the horse, and who, to their less informed neighbours, appeared, when mounted, to constitute, with the horse, but one animal.

47. THE CROW, (*Corvus.*)

The Crow, or Raven as it is sometimes call ed, is said to be among the most ancient constellations. This bird was held, by many of the eastern nations, as sacred to the sun, and introduced into the rights of their religion. The Greeks refer it to the crow into which Apollo transformed himself to avoid the Giant Typhon, at the time Pan took the form of a goat. Almost impenetrable obscurity rests upon the history of nearly all the constellations, arising principally from the hieroglyphical style in which they were first formed, and the revolutions which have been introduced among them by the various hands through which they have successively passed, to suit the events of subsequent ages. Nor is the path in which the historical fragments of their origin and changes, lie scattered, rendered any more inviting by the dirt with which it is bestrewed.

ASTRONOMICAL CALCULATIONS.

PROBLEM 1.

The method of resolving degrees, minutes, and seconds, or distance, into time.

RULE 1.

Say, as 24 hours is to 360 degrees, so is 1 hour to a fourth term representing the apparent hourly motion of the heavens.

Thus : as 24 h. : 360 deg. : : 1 h. : 15 deg. answer.

Again : as 60 min. : 15 deg. : : 1 min. : ,25 deg. or 15 miles, or,

Finally : as 60 sec. : 15 min. : : 1 sec. : ,25 or 15 sec. and so on.

Hence the following :

TABLE 1.

TO REDUCE DISTANCE TO TIME.

dg. m.	h. m.	m. sc.	dg. m.	h. m.	m. sc.	sc.	dg. sc.
1	0	4	30	2	0	1	,067
2	0	8	40	2	40	2	, 13
3	0	12	50	3	20	3	, 2
4	0	16	60	4	0	4	, 26
5	0	20	70	4	40	5	, 3
6	0	24	80	5	20	6	, 4
7	0	28	90	6	0	7	, 46
8	0	32	100	6	40	8	, 53
9	0	36	200	13	20	9	, 6
10	0	40	300	20	0	10	,667
20	1	20	360	24	0	11	,733

PROBLEM 2.

The method of resolving time into degrees &c.

RULE 2.

Say, as 360 deg. is to 24 hours, so is 1 deg. to a fourth term expressing the answer.

Thus: as 360 deg. : 24 :: 1 deg. : ,067 nearly, or 4 minutes.
Again: as 60 min. : 4 min. :: 1 min. : ,067 nearly, or 4 seconds.
Finally : as 4 min. : 1 deg. :: 1 : 1-4, or 15 sec.
Hence the following:

TABLE 2.

TO REDUCE TIME TO DEGREES. &c.

hs.	deg.	m s.	d. m. or m. s		d. of s	sec.
1	15	1	, 0	15	;1	1,5
2	30	2	0	30	,2	3
3	45	3	0	45	,3	4,5
4	60	4	1	0	,4	6
5	75	5	1	15	,5	7,5
6	90	6	1	30	,6	9
7	105	7	1	45	,7	10,5
8	120	8	2	0	,8	12
9	135	9	2	15	,9	13,5
10	150	10	2	30	1m.	15
11	165	20	5	0		
12	180	30	7	30		
16	240	40	10	0		
20	300	50	12	30		
24	360	60	15	0		

TABLE 3.

DECIMAL PARTS OF AN HOUR OR A DEGREE.

1	,016	1	,00027
2	,03	2	,00055
3	,05	3	,00083
4	,06	4	,001
5	,083	5	,00138
6	,1	6	,0016
7	,116	7	,00194
8	,13	8	,002
9	,15	9	,0025
10	,16	10	,0027
20	,3	20	,005
30	,5	30	,0083
40	,6	40	,01
50	,83	50	,0138
60	1	60	1

EXPLANATION, TABLE 1.

Reduce 49 deg. 14 min. 10 sec. into time.

				hs.	m.	s.
1. Look in 3d col. for 40 d.; against it stands, in 4th col.				2	40	0.
2. " 1st col. 9 deg. opposite to which is					36	0
3. " do. 10 min. opposite to this is						40
4. " do. 4 do. do.						16
5. " 5th col. against 10, stands						,667

The true time, 3   16   56,667

EXAMPLE, TABLE 2.

Reduce 3 hrs. 16 min. 56,667 sec. into deg. min. sec.

			dg.	m.	sec.
1. Against 3 h. 1st col. Table 2d, is			45	0	0
2. " 10 m. 3d col	is		2	30	0
3. " 6 m. do.	is		1	30	0
4. " 50 sec. do.	is			12	30
5. " 6	is			1	30
6. " ,6-9 or 667-10, nearly					10

The degrees required, 49   14   10

Reduce 138 deg. 49 min. 16 sec. into time, then back into degrees, &c.

Required, the degrees &c. assigned to 17 hrs. 42 min. and 29 sec. and the answer brought back into time.

Resolve 59 deg. 59 min. 59,8 sec. into time, and back.

PROBLEM 2.

To find the sun's place, his right ascension and declination for any time in the year, the month and day being given.

(Obs.) The right As. of all the heavenly bodies is reckoned on the celestial equator, from the point Aries round the whole circle 360 degrees. Their declination is counted north or south of that circle, towards the poles. The sun can have but 23 degrees and 28 minutes either north or south dec. Most of the planets are confined to the limits of the ancient Zodiac, and can have only 31 degrees 30 minutes either north or south dec. But a star can have 90 degrees of north or south dec.

The ecliptic is the sun's apparent path; to this, therefore, reference is had for his apparent place, which is finally referred to the equinoctial for his right ascension.

RULE 3.

1 Look for the given month and day on the southern side of the ecliptic, and immediately opposite on the north side will be found the appropriate sign for the month, and division of the sign for the day, which is the sun's apparent place for that day.

2. Extend a graduated rule or small thread from the pole, through the degree thus obtained, to the equinoctial, and the degree cut by the rule or line, will be the sun's right ascension for that day.

3. Look for the same month and day, (on the north half of the Analemma, if the sun's place be among the north signs, but the south half if his place be among the south signs,) and the degree opposite the given day, referred to the perpetual meridian (the solstitial colure) will show his declination for that day.

EXAMPLES.

Where is the sun's place, and what his right ascension and declination on the 31st of May?

1. The sun's place is the 10th degree of Gemini: his right ascension is 67 degrees and 30 minutes: and his declination is 21 degrees and 50 minutes north.

2. Find the sun's place, his Rt. As. and Dec. for the 1st of January.

3. Where is the sun's place, his Rt. As. and Dec. 4th March?

4. Give the sun's place, Rt. As. and Dec. for the 4th of July.

5. Find the sun's place, his Rt. As. and Dec. for the 15th day of each month in the year.

(Obs.) The places of the planets may be found by consulting an Ephemeris, which is usually attached to the front part of the annual Almanack. Hence their places may be found in the Zodiac, and their Rt. As. determined the same as the sun's.

. 6. On the 25th of June 1825, Jupiter was in the 13th degree of Leo; what was his Rt. As.?

7. At the same time Venus was in the 17th degree of Taurus; what was her Rt. As.; and was she visible at Washington?

8. Mars at that date, was in the 26th degree of Gemini; give his Rt. As.

9. The moon's place was the 1st degree of Virgo; what was her Rt. As.?

10. The sun's place was the 3d degree of Cancer; give his Rt. As. and Dec.

PROBLEM 3.

To find the right ascension and declination of any given fixed Stars.

(Obs.) As the stars do not appear to change their places in the heavens, their apparent Rt. As. and Dec. are always the same; the first is reckoned on the equinoctial circle from Aries and may run as high as 360 degrees, the other is reckoned from that circle to the poles either N. or S. and may be 90 degrees.

RULE 4.

1. The rule or line, furnished with a small, sliding bead, extended from the pole, through the centre of the given star, to the equinoctial circle, will give that star's Rt. As.

2. Then the bead, slipped to the centre of the star, and with the line, referred to the left hand side of the solstitial colure, will show the star's declination.

3. Then the line and bead referred to the right hand side of the same colure, will show the star's polar distance.

4. The bead being kept stationary, refer that and the line to the north side of the equinoctial colure, and the bead will cut the degree, showing the star's amplitude distance.

5. Then the line, being referred to the south side of the same colure, will show, by the degree cut by the bead, the star's azimuth distance.

(Obs.) 1. The declination of a star, is its distance N. or S. of the equator.

(Obs.) 2. The polar distance of a star, is its distance from the pole of that hemisphere on which the given star is located.

(Obs.) 3. The amplitude distance of a star is that point in the Horizon, either N. or S. of the eastern point, at which a star rises; or N. and S. of the western point, at which a star sets.

1. What is the Rt. As. Dec. Polar, Amp. and Azim. distances of Regulus?

2. Find the Rt. As. Dec. Polar, Amp. and Azim. distances of Dubhee; of Aldebaron; of Arcturus; of Vega; of Rigel; of Sirius; of Altair; of Procyon; of Castor; of Spica; of Acrux; of Denebola; of Canopus; of Arobur; of Acherner; of Agena; of Antares; of Fomalhaut; of Bungula; and of Betelgues.

(Obs.) When the Rt. As. Dec. Polar, Amp. and Azim. distances are given, to find any proposed star, the mode of operating is precisely the reverse, and will therefore need no explanation.

PROBLEM 5.

To find the time when any given star, passes the meridian of a given place, on a given day.

RULE 5.

1. Find the sun's place and Rt. As. for the given day.

2. Then find the given star's Rt. As. and the difference will give the time of the star's meridional passage.

(Obs.) If the star lies east of the sun, it passes the meridian after him; if west, then, before him.

The distance in degrees, &c. must be changed into time agreeably to the 1st rule, or by the help of the hour circles.

EXAMPLES.

1. At what time does Acherner pass the meridian of Washington on the 1st of Jan.?

2. When does Antares pass that meridian on the 4th of March?

3. When does Altair south at Washington on the 15th April?

4. At what time does Vega pass the meridian of Washington on the 15th June?

5. At what time does Arcturus pass that meridian on the 15th of August?

PROBLEM 6.

To find the meridional altitude of a star, for any given latitude.

To the complement of the given latitude add the given star's declination; or from that complement, subtract the star's declination, (as the latitude of the given place and the declination of the star, are of the same or different denominations,) and the result will give the star's meridional altitude.

(Obs.) The meridional altitude of a star or any of the celestial bodies, is the arc of a vertical circle measured from the horizon, when the star or body is on the meridian of the place of which the latitude is given.

EXAMPLES.

1. What is the meridional altitude of Vega, at Washington, the latitude of which is 39 degrees, nearly, north?

2. What is the meridional altitude of Acrux, in latitude 43 degrees south?

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3. What is the meridional altitude of Spica at Cape Horn, latitude 56 degrees south.

4. What is the zenith distance of Capella when south at Utica, 43 degrees north?

5. What is the zenith distance of Arcturus, when south at Philadelphia, 40 degrees north?

6. In what latitude south, does Sirius pass through the zenith?

(Obs.) Many other problems might be introduced, but it is presumed the above are sufficient to bring the learner acquainted with the map, and enable him to introduce others of his own construction.